

Typhoon Kate (04W)

Typhoon Kate (04W) was the first 1999 cyclone to reach typhoon intensity. JTWC issued the first warning on this cyclone as a tropical depression while it was over Mindanao on 18 April. TY Kate initially moved northward then northeastward around the northern periphery of the subtropical ridge within the deep westerlies flow regime. TY Kate reached a max intensity of 75 kt and tracked 5 nm north of Iwo Jima, Japan. Observations from Iwo Jima included gusts to 68 kt. TY Kate later transitioned to an extratropical system well to the east of Honshu.

JTWC first mentioned the disturbance on the 180600Z April ABPW while it was in the Philippine Sea. As it drifted westward in the low-level flow it moved over Mindanao, Philippines on 20 April. Although it was over land, JTWC forecasters identified a slight intensification through synoptic data and satellite analysis. As such, JTWC issued a Tropical Cyclone Formation Alert at 210930Z April. The disturbance continued to slowly intensify and JTWC issued the first warning with a maximum intensity of 25 kt at 220300Z April, still over land.

During the first 24 hours, TD 04W tracked northward under the steering influence of the subtropical ridge to the east. On 230000Z April, the cyclone slowed and began to consolidate reaching tropical storm intensity. Initially the cyclone was forecast to intensify slightly and track north-northeastward and dissipate in a region of strong vertical windshear due to interaction with a mid-latitude frontal boundary. As it tracked further north and moved around the ridge axis it moved within the deep steering flow north of the ridge axis. As such, the vertical structure was all westerly flow and resultant windshear was minimal. The lack of windshear allowed TY Kate to continue to intensify as it remained embedded in the predominant westerly flow.

Visible imagery indicated TY Kate had developed an eye at 262330Z (Figure 1-04-1). Afterwards, a Tropical Rainfall Measurement Mission (TRMM) pass became available and indicated an eye was forming at 261800Z (Figure 1-04-2). A few hours later, a 262200Z Special Sensor Microwave/Imager (SSM/I) pass (Figure 1-04-3) indicated TY Kate had weakened, but still maintained a well defined eye. TY Kate tracked 5nm north of Iwo Jima, Japan on 271000Z Apr as a 70 kt system. Post analysis established peak intensity (75 kt) at 261800Z April as it continued to accelerate northeastward. TY Kate continued to accelerate east-northeastward and weaken (Figure 1-04-4) losing most of its convection by 271700Z (Figure 1-04-5/6). JTWC issued the 27th and final warning at 281500Z April as it become an extratropical system (Figure 1-04-7).

Observations from Iwo Jima included peak 10 minute sustained winds of 40 kt (50 kt 1 minute average) with 68 kt gusts. TY Kate was a 70 kt system as it tracked about 5 nm north of Iwo Jima. No damage reports were available.

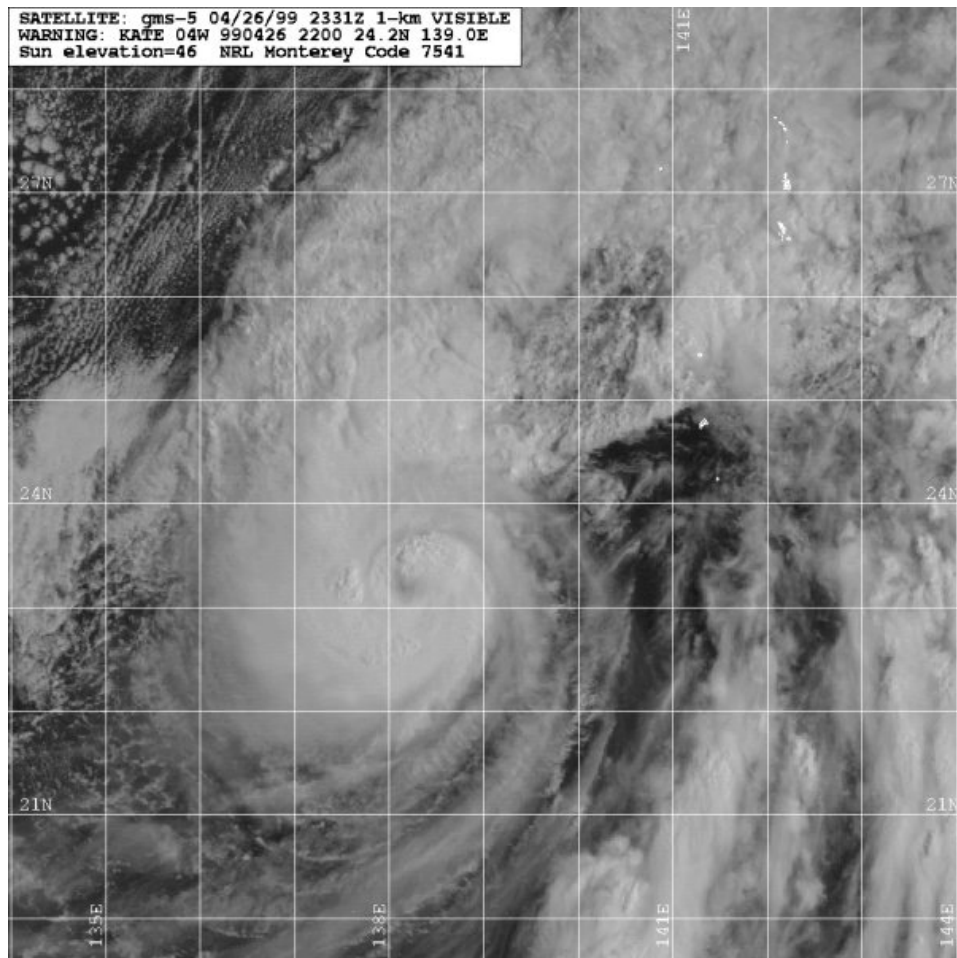


Figure 1-04-1. 262330Z April GMS-5 visible image of TY Kate. TY Kate was at it's max intensity (75 kt).

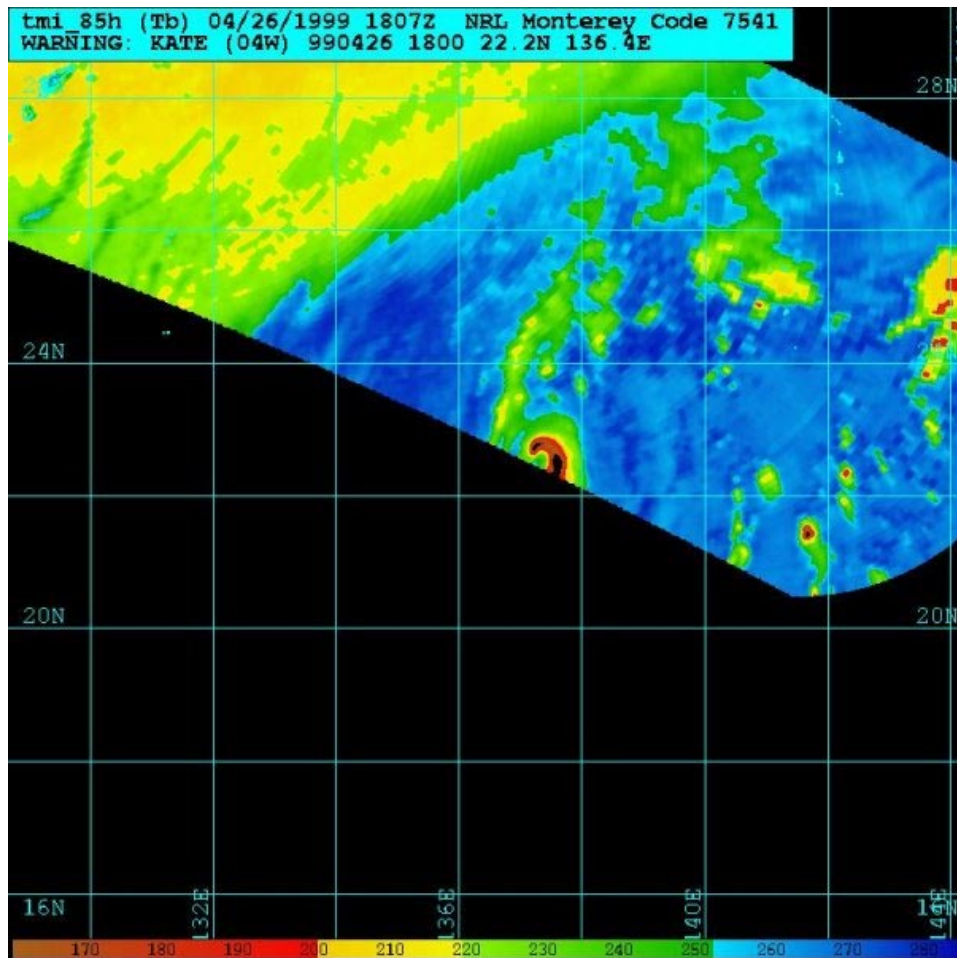


Figure 1-04-2. 261807Z April Tropical Rainfall Measurement Mission (TRMM) pass shows a very distinct spiral band and possible eyewall. TY Kate was at it's max intensity (75 kt).

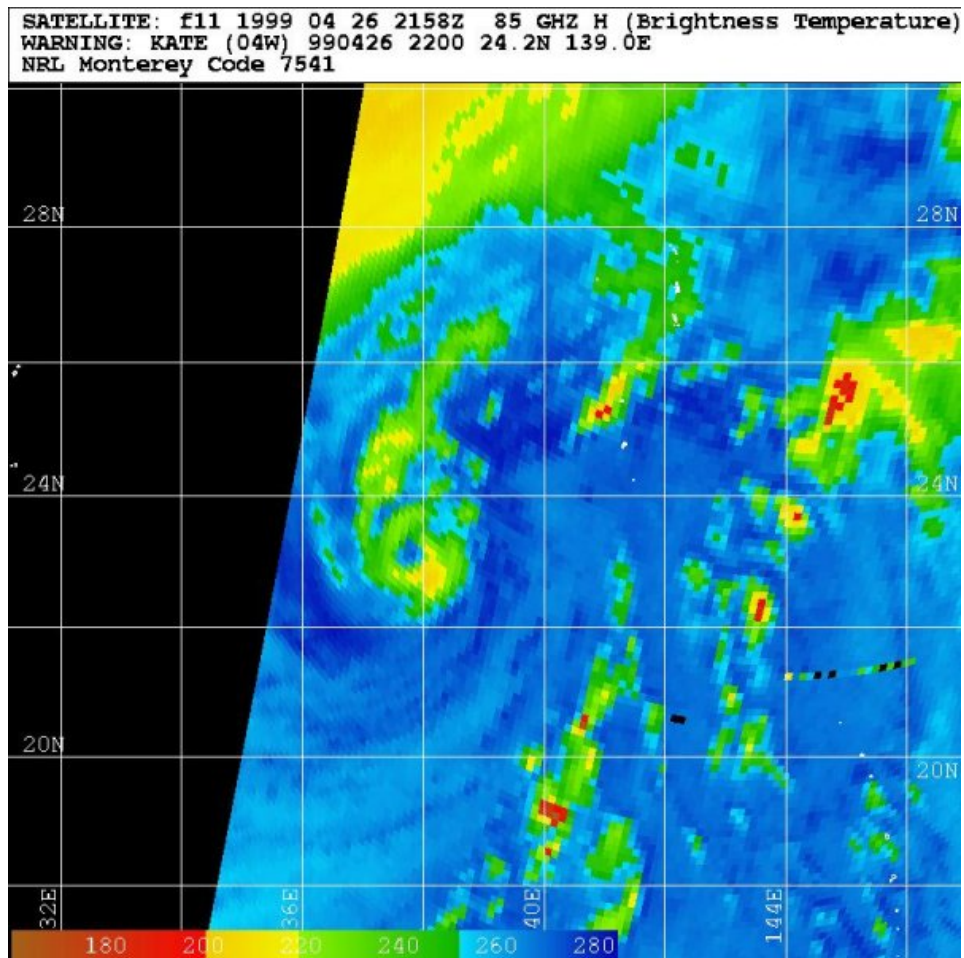


Figure 1-04-3. 262200Z April Special Sensor Microwave/Imager (SSM/I) pass reveals a distinct eye with max convection in the southeast quadrant.

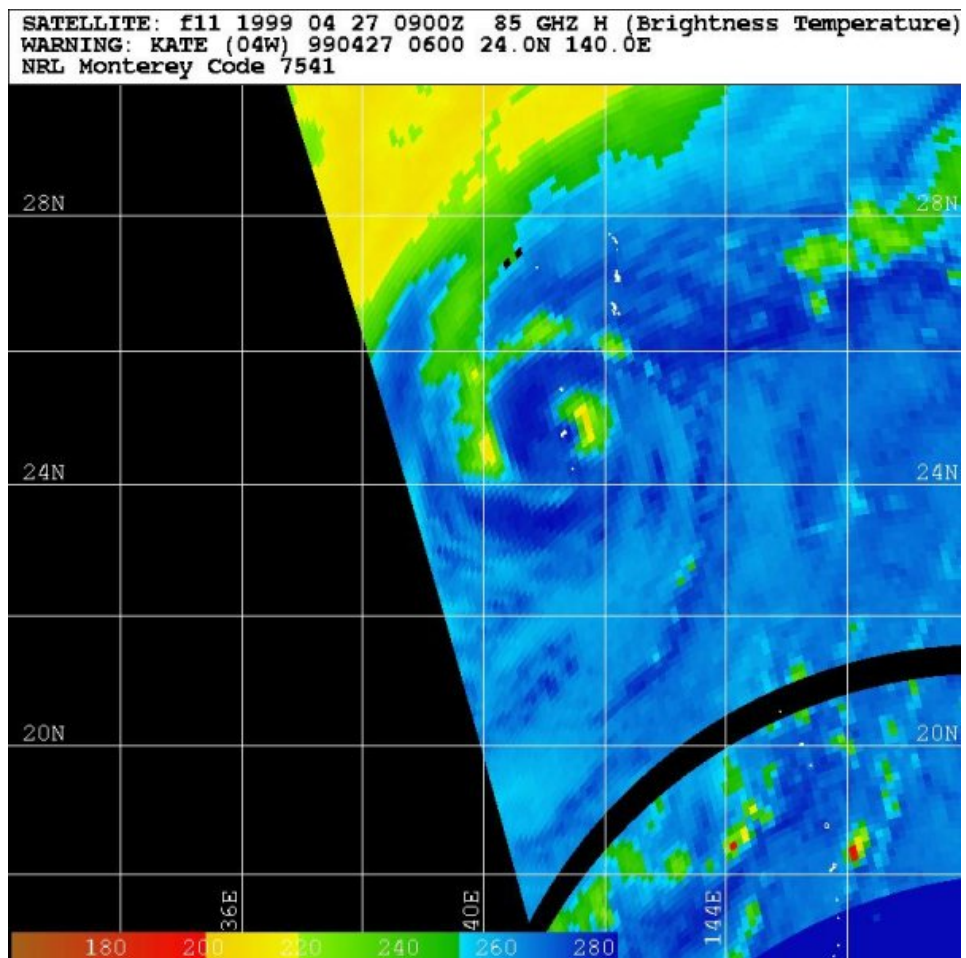


Figure 1-04-4. 270900Z April SSM/I pass shows convection now limited to the east side.

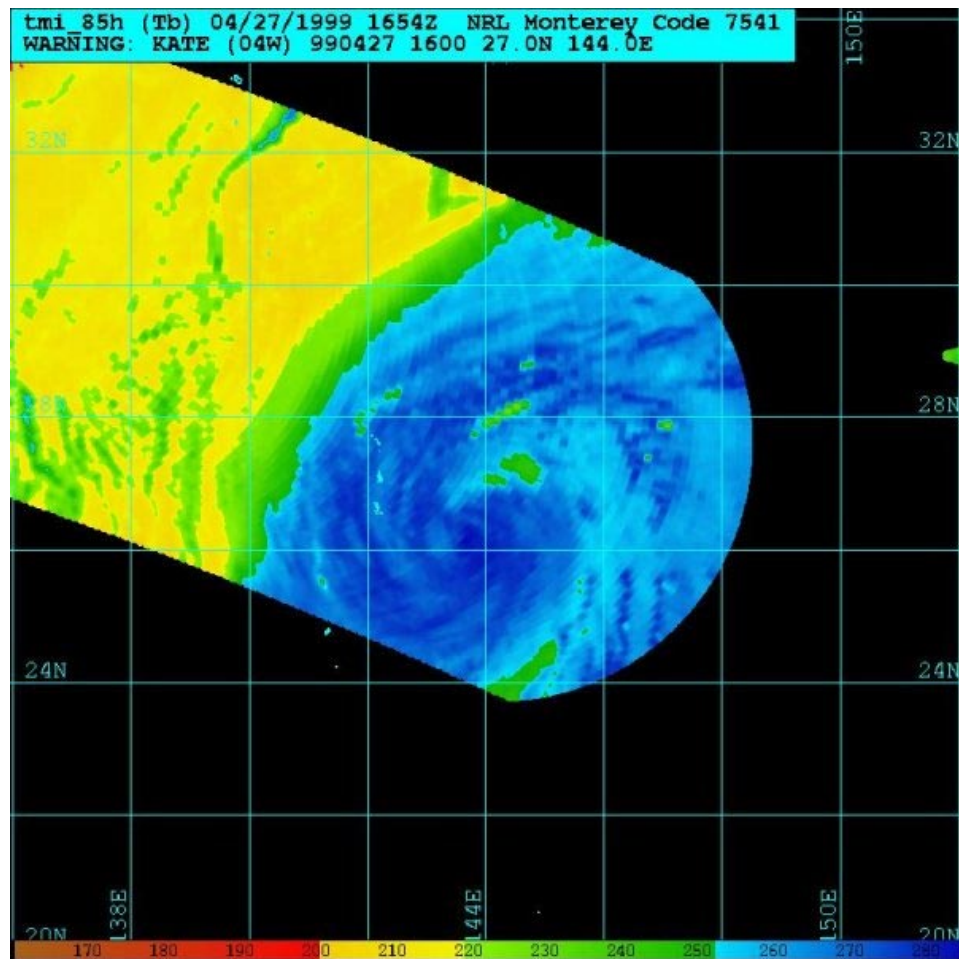


Figure 1-04-5. 271654Z April TRMM pass indicates deep convection has dissipated.

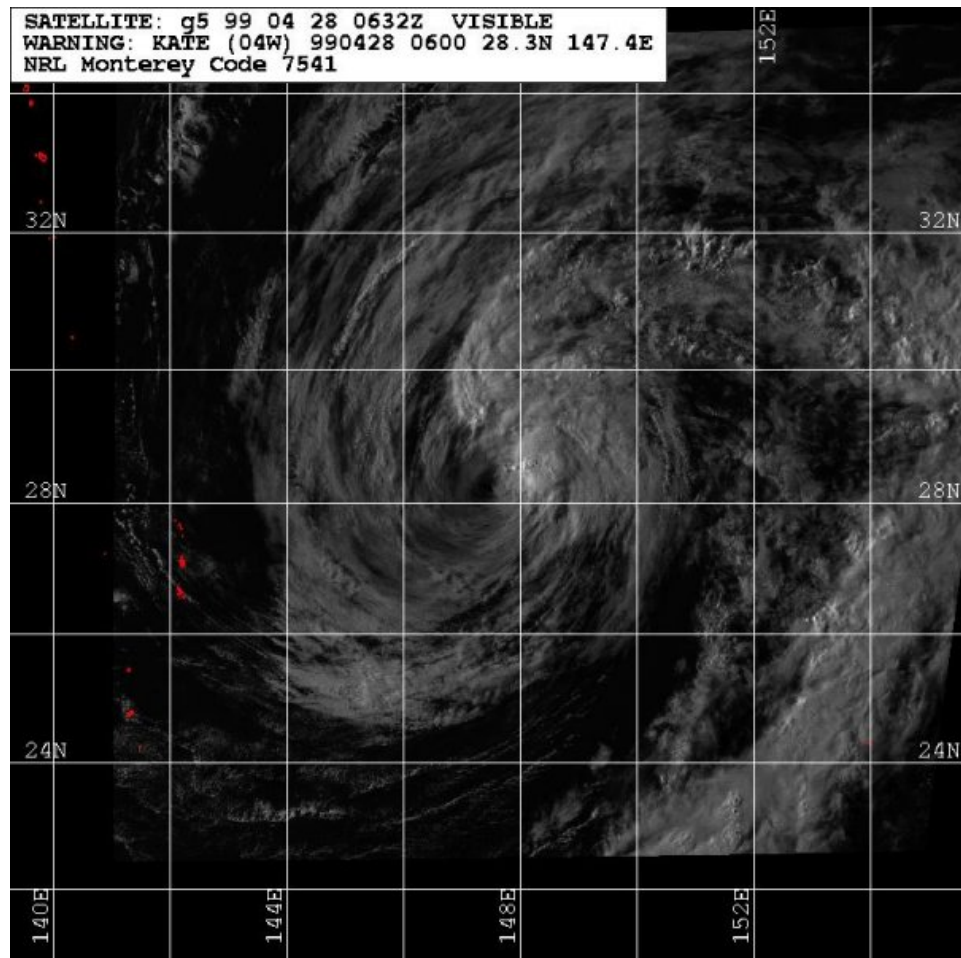


Figure 1-04-6. 280632Z April GMS-5 visible image indicates the system is elongating and transitioning to an extratropical system.

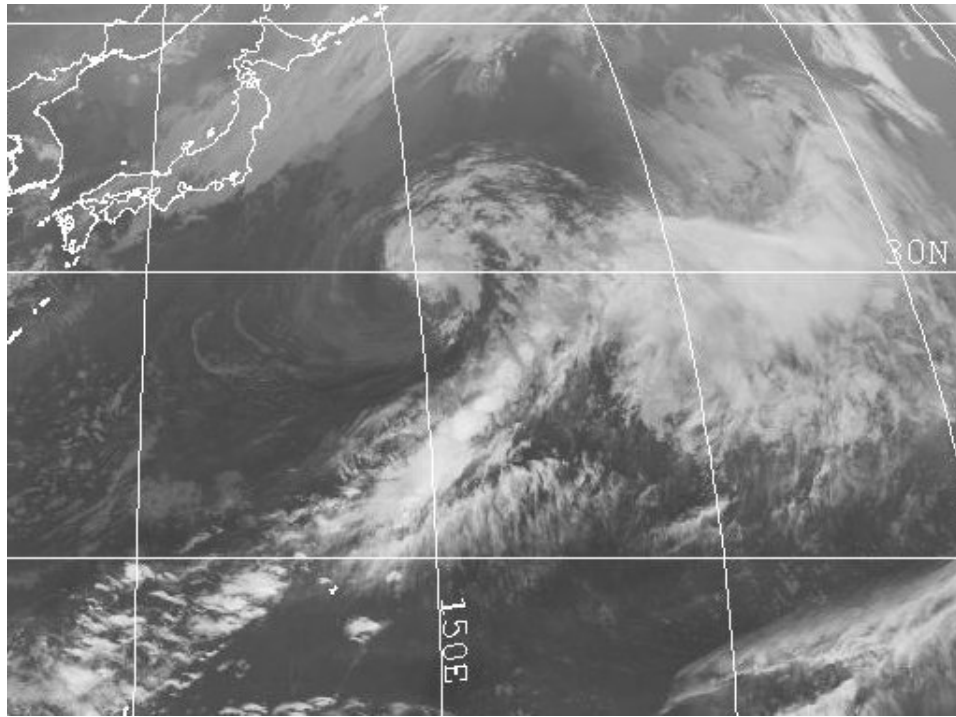


Figure 1-04-7. 281130Z April GMS-5 infrared image as TS Kate transitions to an extratropical system.

